

Claims:

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1. An electrode adapted for attachment to an adherend comprising:
- 5 (a) an electrode support having a first and a second opposed surface,
- (b) a conductor supported by the electrode support, and
- (c) a conductive adhesive layer comprising a hydrophilic phase and a hydrophobic phase that is disposed upon a major portion of the first, opposed surface of the electrode support and the conductor, wherein a portion of the conductive adhesive layer is hot-pressed to enhance the adhesion strength of the portion to an adherend, and wherein a portion of the conductive adhesive layer is not hot-pressed.
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2. An electrode according to claim 1, wherein the conductor is either in the form of a layer of conductive material disposed upon at least a portion of the first, opposed surface of the electrode support, or, the conductor is in the form a conductive stud that passes through a portion of the first, opposed surface of the electrode support and completely through the electrode support to project below the second, opposed surface of the electrode support.
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3. An electrode according to any preceding claim, wherein the electrode further comprises a release liner disposed upon an exposed surface of the conductive adhesive layer.
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4. The electrode according to any preceding claim, wherein the portion of the conductive adhesive layer that has been hot-pressed is a perimetrical portion.
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5. The electrode according to any of the preceding claims, further comprising an indentation that separates the heat-pressed portion of the conductive adhesive layer from the portion of the conductive adhesive layer that has not been hot-pressed.
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6. An electrode according to any preceding claim, wherein the conductor is in the form of a layer of conductive material and the area of the conductor is essentially coextensive with the area of the electrode support.

5 7. An electrode according to any preceding claim, wherein the conductor comprises a conductive ink.

8. An electrode according to any preceding claim, wherein the conductive adhesive layer comprises:

10 (a) a hydrophilic phase comprising hydrophilic polymer material, an electrolyte, and a humectant, and

(b) a hydrophobic phase comprising hydrophobic polymer derived from the polymerization of hydrophobic monomer or oligomer in the presence of a surfactant and the hydrophilic phase.

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9. An electrode according to claim 8, wherein the conductive adhesive layer consists essentially of:

(a) a hydrophilic phase comprising hydrophilic polymer material, an electrolyte, and a humectant, and

20 (b) a hydrophobic phase comprising hydrophobic polymer derived from the polymerization of hydrophobic monomer or oligomer in the presence of a surfactant and the hydrophilic phase.

10. An electrode according to any of claims 8 to 9, wherein the hydrophilic polymer material is selected from the group consisting of polymers containing one or more polyethylene glycol groups or polymers containing one or more pyrrolidone groups.

25 11. An electrode according to any of claims 8 to 10, wherein the electrolyte is selected from the group consisting of aqueous solutions of potassium chloride, sodium chloride or lithium chloride.

12. An electrode according to any of claims 8 to 11, wherein the humectant is selected from the group consisting of propylene glycol or sodium DL-pyrrolidonecarboxylate.

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13. An electrode according to any of claims 8 to 12, wherein the hydrophobic polymer comprises interpolymerized units derived from one or more of the following monomers: acrylic acid, isooctyl acrylate, 2-ethylhexyl acrylate and n-butyl acrylate.

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14. An electrode according to any of the preceding claims wherein the adherend is mammalian skin.

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15. A method of improving the adhesion strength of a portion of a conductive adhesive layer comprising a hydrophilic phase and a hydrophobic phase by hot-pressing a portion of the conductive adhesive layer and not hot-pressing a portion of the conductive adhesive layer.

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16. The method according to claim 15, wherein the hot-pressed portion is a perimetrical portion.

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17. The method according to any of claims 15 to 16, further comprising forming pinholes in the portion of the conductive adhesive layer to be hot-pressed prior to hot pressing.